1. A method of forming a micromechanical actuator for a storage device, the method comprising:

providing a read/write slider;

forming a movable member coupled with the read/write slider; and

forming an electro-thermal actuator element in contact with the movable member to effect relative positioning of the read/write slider.

2. The method of claim 1, wherein forming the movable member further comprises lithographically defining the movable member on the read/write slider.

3. The method of claim 2, wherein forming the movable member further comprises deep reactive ion etching the lithographically defined movable member.

4. The method of claim 1, wherein forming the movable member comprises forming a movable member having a proximal and a distal end, the proximal end attached to the slider and the distal end free-standing with respect to the slider.

5. The method of claim 4, wherein forming the movable member further comprises deep reactive ion etching a curved line a selected distance into a face of the read/write slider so as to form a free-standing movable member on the read/write slider that is coupled to the read/write slider only at one end of the movable member.

6. The method of claim 5, further comprising etching a hole into the read/write slider perpendicular to the etching of the curved line to define a neck in the movable member.

BRIAN C. KUNZLER
ATTORNEY AT LAW
10 WEST 100 SOUTH, SUITE 425
SALT LAKE CITY, UTAH 84101

7. The method of claim 1, wherein forming an electro-thermal micromechanical actuator element on the movable member further comprises placing an electrically actuated heater element on the slider.

8. The method of claim 7, wherein placing an electrically actuated heater element on the slider further comprises sputtering a high melting point material with a melting temperature greater than about 500 degrees C on the surface of the slider opposite the air bearing surface of the slider.

9. The method of claim 7, wherein forming an electro-thermal micromechanical actuator element further comprises forming two electrical leads upon the movable member, the two electrical leads comprising a first lead and second lead, the first lead substantially narrower than the second lead.

BRIAN C. KUNZLER
ATTORNEY AT LAW
10 WEST 100 SOUTH, SUITE 425
SALT LAKE CITY, UTAH 84101

10. A method of forming a micromechanical actuator for a storage device, comprising:

forming a read/write slider;

lithographically defining a movable member on a body of the read/write slider;

reactive ion etching the lithographically defined movable member to form the movable member with a proximal and a distal end, the proximal end attached to the slider and the distal end free-standing with respect to the slider; and

forming an electrically actuated heater element on the surface of the read/write slider opposite the air bearing surface of the slider by forming first and second substantially coextensive leads, the first lead substantially narrower than the second lead, such that the first lead heats up more quickly then the second lead when current is applied to the heater element causing a displacement of the movable member and relative positioning of the read/write slider.

11. A micromechanical actuator for a storage device, comprising:

a read/write slider;

a movable member coupled with the read/write slider; and

an electro-thermal actuator element in contact with the movable member, to effect relative positioning of the read/write slider.

12. The micromechanical actuator of claim 11, wherein the read/write slider comprises a reactive ion etchable material.

13. The micromechanical actuator of claim 11, wherein the movable member comprises a freestanding structure attached at one end to the read/write slider.

BRIAN C. KUNZLER
ATTORNEY AT LAW
10 WEST 100 SOUTH, SUITE 425
SALT LAKE CITY, UTAH 84101

14. The micromechanical actuator of claim 11, wherein the movable member further comprises a proximal end and a distal end, the proximal end attached to the slider body and the distal end free-standing with respect to the slider body.

15. The micromechanical actuator of claim 14, wherein the movable member further comprises a tongue-shaped region etched out of a face of a body of the read/write slider.

16. The micromechanical actuator of claim 14, wherein the movable member further comprises an integral, elongated portion of the slider body defined at the distal end by a leading edge of the slider body, defined at a top end by the top of the slide body, defined at a bottom by a trench having the shape of a curved plane extending laterally through the slider body and extending from a first side member to a second side, the movable member attached at the proximal end to the slider body.

17. The micromechanical actuator of claim 16, further comprising a hole disposed substantially at the proximal end of the movable member, the hole defining a narrow neck in the rear of the movable member.

18. The micromechanical actuator of claim 11, wherein the electro-thermal actuator element further comprises an electro-thermal heater element placed substantially on the movable member.

19. The micromechanical actuator of claim 18, wherein the electro-thermal heater element comprises first and second leads extending in two substantially parallel directions on the movable member, the first lead extending along a first side of the movable member and the second lead extending along a second side of the movable member, the first lead

BRIAN C. KUNZLER
ATTORNEY AT LAW
10 WEST 100 SOUTH, SUITE 425
SALT LAKE CITY, UTAH 84101

14. The micromechanical actuator of claim 11, wherein the movable member further comprises a proximal end and a distal end, the proximal end attached to the slider body and the distal end free-standing with respect to the slider body.

15. The micromechanical actuator of claim 14, wherein the movable member further comprises a tongue-shaped region etched out of a face of a body of the read/write slider.

16. The micromechanical actuator of claim 14, wherein the movable member further comprises an integral, elongated portion of the slider body defined at the distal end by a leading edge of the slider body, defined at a top end by the top of the slide body, defined at a bottom by a trench having the shape of a curved plane extending laterally through the slider body and extending from a first side member to a second side, the movable member attached at the proximal end to the slider body.

17. The micromechanical actuator of claim 16, further comprising a hole disposed substantially at the proximal end of the movable member, the hole defining a narrow neck in the rear of the movable member.

18. The micromechanical actuator of claim 11, wherein the electro-thermal actuator element further comprises an electro-thermal heater element placed substantially on the movable member.

19. The micromechanical actuator of claim 18, wherein the electro-thermal heater element comprises first and second leads extending in two substantially parallel directions on the movable member, the first lead extending along a first side of the movable member and the second lead extending along a second side of the movable member, the first lead

BRIAN C. KUNZLER
ATTORNEY AT LAW
10 WEST 100 SOUTH, SUITE 425
SALT LAKE CITY, UTAH 84101

being substantially narrower than the second lead such that passing a current through the electro-thermal heater element distorts the movable member to one side or the other in a selected manner depending upon the amount of current that is passed through the electro-thermal heater element.

20. A method of operation of a positioning system of a storage device, comprising:

detecting the position of a read/write slider with relation to the centerline of a read/write track of a storage device;

determining the magnitude and direction of motion necessary to place a read/write slider over the centerline of the read/write track of a storage device; and

supplying a current to an electro-thermal micromechanical actuator located on the read/write slider to cause the electro-thermal micromechanical actuator to position the read/write slider over the centerline of the read/write track of the storage device.

21. The method of claim 20, wherein supplying a current to an electro-thermal actuator such that the actuator positions the read/write slider over the centerline of the read/write track of the storage device further comprises channeling the current through an electrically actuated heater element located upon the read/write slider.

22. The method of claim 21, wherein channeling the current through an electrically actuated heater element located upon the read/write slider causes a movable member located upon the read/write slider to distort as the electrically actuated heater element changes temperature when current is passed through it.

BRIAN C. KUNZLER
ATTORNEY AT LAW
10 WEST 100 SOUTH, SUITE 425
SALT LAKE CITY, UTAH 84101

23. The method of claim 22, wherein the distortion caused in the movable member by the change in temperature of the heater element creates a finite motion of the read/write slider.

24. The method of claim 20, further comprising gross positioning of the read/write slider prior to the supplying of a current to an electro-thermal micromechanical actuator located on the read/write slider.

BRIAN C. KUNZLER
ATTORNEY AT LAW
10 WEST 100 SOUTH, SUITE 425
SALT LAKE CITY, UTAH 84101